Forest Health Notes

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Laurel Wilt Continues To Spread In Southeastern North Carolina

In March of 2011, the devastating laurel wilt disease was found killing redbay trees in southeastern Bladen County. A subsequent survey confirmed the presence of the disease in Columbus, Pender, and Sampson counties. Though the initial detections of the disease occurred across a four county area, all the confirmed locations were within 15 miles of the initial detection in Bladen County. In March of 2012, the first of many laurel wilt-killed redbay trees were confirmed in Brunswick County, bringing the current tally to five affected counties.

The North Carolina Forest Service (NCFS) - Forest Health Branch has been actively surveying the affected counties to determine the extent of the disease within these counties. In an effort to track the disease, a 10 minute (or roughly 10 mile) grid was applied to the counties. As the disease was confirmed in a given location, the corresponding grid square was highlighted as shown in the map at the end of this document. Note that our surveying resources were limited and the disease may also be present in areas adjacent to the known locations, specifically in Columbus and Brunswick Counties along the Waccamaw River and in the Green Swamp.

Thus far, our hardest hit area appears to be concentrated near the initial find in Bladen County, where an estimated 30-50 percent of the redbay are dying. Mortality rates visually estimated at around 30 percent are also being seen around Lake Waccamaw, where the disease appears to be spreading rapidly. Areas on the periphery of these two locations appear to be experiencing considerably lower mortality rates. The moderate to low mortality rates being observed in all affected areas suggests that the disease has likely not been present in North Carolina for very long. If the disease behaves in North Carolina as it has in states farther south, where it has killed more than 95 percent of the mature redbay, we can expect the redbay mortality rate to continue to increase over time.

What is laurel wilt?

Laurel wilt is caused by a fungus (*Raffaelea lauricola)* that is introduced into trees in the Laurel family by a tiny non-native beetle known as the redbay ambrosia beetle (*Xyleborus glabratus*). Trees and shrubs susceptible to this disease include redbay and swampbay, and to a lesser extent, sassafras, spicebush, pondspice, and pondberry. **Note that mountain-laurel, loblolly bay, sweetbay, and rhododendrons are not susceptible to this disease.**

Ambrosia beetles are fungus farmers. As a female ambrosia beetle bores into a host tree, she releases ambrosia fungus spores. She and her offspring will later feed on the fungus that grows from these spores. All ambrosia beetles carry spores for their preferred ambrosia fungus. The ambrosia fungus carried by the redbay ambrosia beetle is unique in that it kills its host trees. As the fungus grows, the tree tries to block its spread and essentially chokes off the movement of water, causing the tree to wilt and die. The laurel wilt fungus spreads quickly and infected trees often die in as little as 30 days after symptoms appear. The ambrosia fungus is virulent, and it is believed that a single beetle can introduce enough fungus to kill a tree.

Where did it come from?

The redbay ambrosia beetle is native to Asia, but was brought to the U.S. in wood packing material. Laurel wilt was originally observed killing redbay trees in Georgia and South Carolina in 2003. Since that time, the disease has been spreading outward, predominantly south and west. The redbay ambrosia beetle is estimated to spread naturally at a rate of 15-20 miles per year, but evidence suggests the introductions in North Carolina were likely human-assisted. **The redbay ambrosia beetle can easily be moved in wood products, such as logs, firewood, and other unprocessed woody material from trees in the Laurel family.**

How will I recognize laurel wilt?

Symptoms of laurel wilt include drooping reddish-brown and/or purplish leaves. Even after the tree is dead, these leaves may stay attached for several years. Evidence of the ambrosia beetle attack can be found by looking at the main stem of the tree. When the beetles bore into the tree, they push out toothpick-like strings of wood called frass. These toothpick-like frass strings may not be present after wind or rain events and are not diagnostic of the redbay ambrosia beetle. Trees with this disease will

also have black staining in the outer sapwood, which can be seen after removing a section of the tree's bark. **Any tools used on a suspected laurel wilt-killed tree should be sanitized before their next use.**

What can be done?

Currently, there is no reliable way to save a wilting tree. **Avoiding the movement of infested wood will slow the spread of the beetle and fungus**. **This non-native invasive pest is easily moved to new locations by people via the movement of infested wood products such as firewood or yard debris. Confirmed laurel wilt-killed trees should not be removed from the site.** Preferred methods of disposal include cutting the tree and leaving it **on the site,** or burying or burning dead trees **on the site** following all state and local regulations.

How do I report a new laurel wilt location?

If the suspected laurel-wilt killed tree appears to be outside of the highlighted grid squares on the attached map, please contact the NCFS Forest Health Branch for confirmation and documentation. Our contact information is shown below. If you are unsure if the site is outside of the highlighted grids, please email the location to Forest Health Monitoring Coordinator Jason Moan.

Forest Health (FH) - East Contact Information

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Rob Trickel - FH Program Head
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Jason Moan - FHM Coordinator
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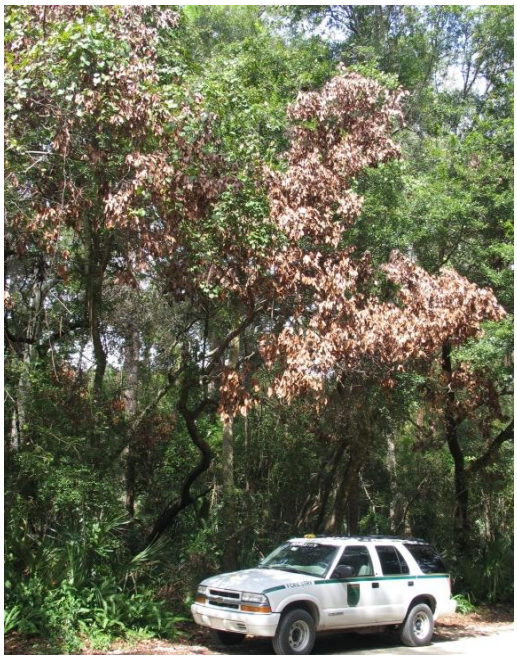
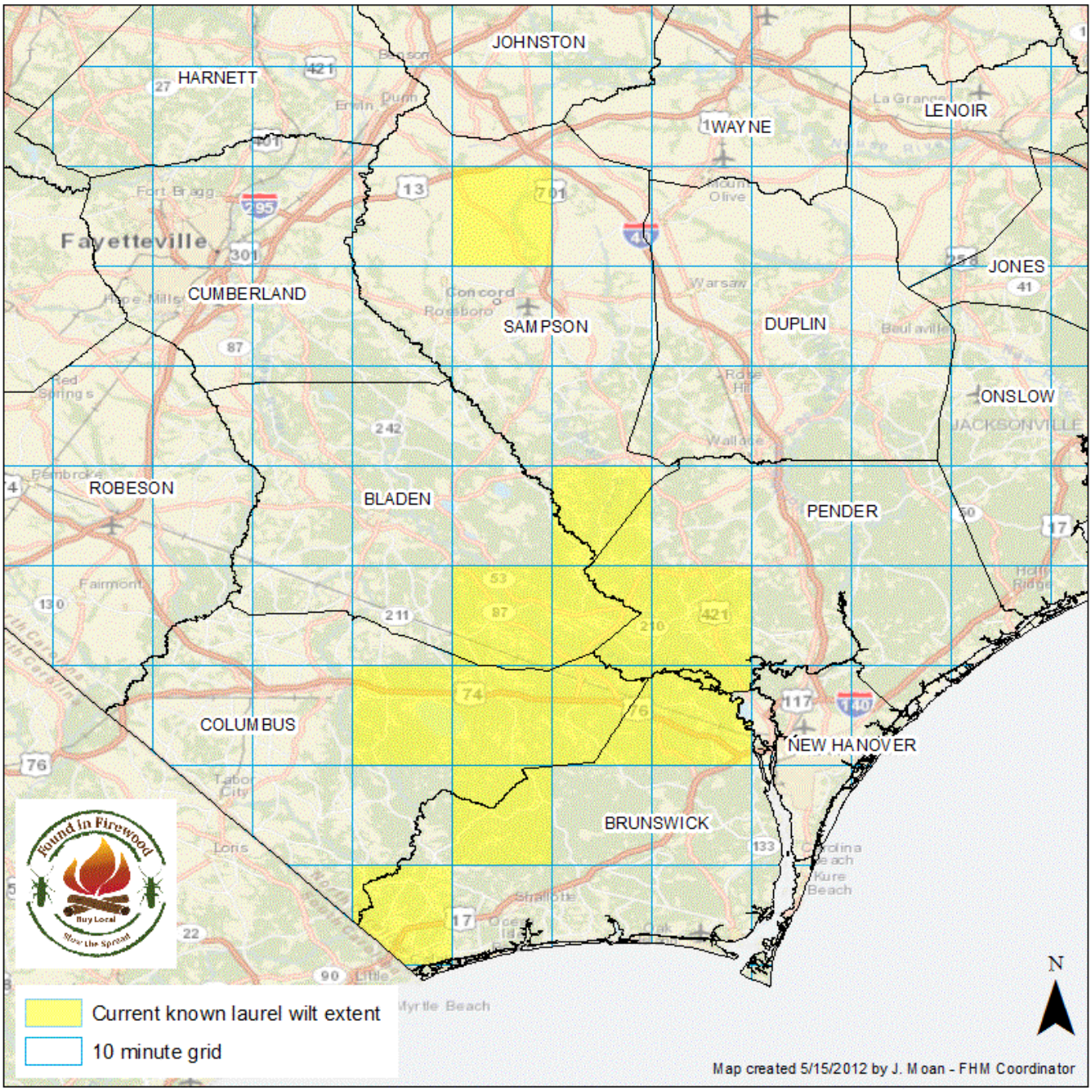
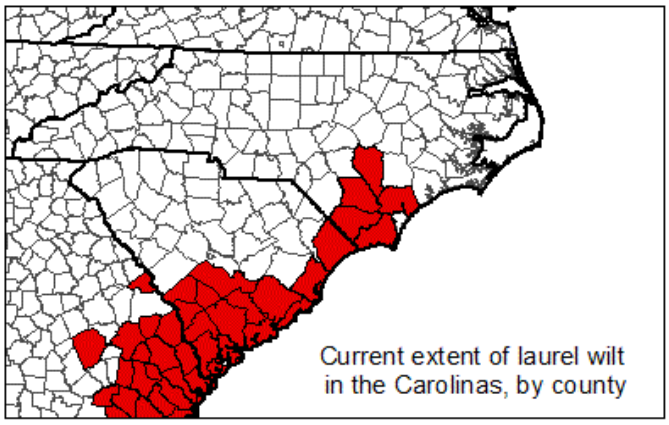
Additional information on the redbay ambrosia beetle and laurel wilt disease can be found at http://www.fs.fed.us/r8/foresthealth/laurelwilt/index.shtml

For other non-native forest pests of concern in North Carolina, please visit http://www.ncforestservice.gov/forest_health/fh_firewood.htm



Toothpick-like frass strings (Top-left) J. Johnson, Georgia Forestry Commission
Dying redbay (Top-right) A. Mayfield, Florida DACS Division of Forestry
Staining in sapwood (Bottom-left) J. Moan, N.C. Forest Service
Female redbay ambrosia beetle (Bottom-right), M. Thomas, Florida DACS Division of Plant Industry





Current Known Distribution of Laurel Wilt in North Carolina

Laurel wilt is a devastating invasive disease of plants in the Laurel family. (Note: This does NOT include mountain-laurel or rhododendron)

Susceptible plants in North Carolina are redbay, swampbay, spicebush, sassafras, pondberry, and pondspice. This disease is spread by the redbay ambrosia beetle and can be moved to new locations in woody material from infested trees.

NORTH CAROLINA FOREST SERVICE NC